



Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

May 6, 2004

ENTERED



Mr. Steve Zappe, Project Leader
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Bldg. 1
Santa Fe, New Mexico 87505-6303

Subject: Transmittal of the Certification Audit Report for the Advanced Mixed
Waste Treatment Project (AMWTP) Audit A-04-12 of Additional
Characterization Activities

Dear Mr. Zappe:

This letter transmits the AMWTP Audit Report for the processes performed to characterize and certify waste as required by Section II.C.2.c of the WIPP Hazardous Waste Facility Permit. The report contains the results of the certification audit performed for the addition of the Consonant Technologies, Inc. (CTI) Headspace Gas Sampling and Analysis for Summary Category Group S3000 (solids) process for the characterization of waste. The audit was conducted April 12-15, 2004.

An electronic version of audit documentation (final audit report, B-6 checklists, and the audited plans and procedures) is included as a courtesy for use by NMED, but is not to be regarded as the formal submittal.

I certify under penalty of law that this document and all enclosures were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Should you have any questions concerning this audit report, please contact the CBFO Quality Assurance Manager, Ava L. Holland, at (505) 234-7423.

Sincerely,

Chuan-Fu Wu for

R. Paul Detwiler
Acting Manager

Enclosure

040504



Steve Zappe

-2-

May 6, 2004

cc: w/o enclosure

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M. Navarrete, CBFO	*ED
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K. Dunbar, WRES
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CBFO QA File
CBFO M&RC

**U. S. DEPARTMENT OF ENERGY
CARLSBAD FIELD OFFICE**

**FINAL AUDIT REPORT
OF THE**

**IDAHO NATIONAL ENGINEERING AND
ENVIRONMENTAL LABORATORY (INEEL), ADVANCED MIXED WASTE
TREATMENT PROJECT**

IDAHO FALLS, IDAHO

AUDIT NUMBER A-04-12

April 12 – 15, 2004

**FINAL AUDIT REPORT OF THE ADDITION OF THE CTI HEADSPACE
GAS SAMPLING AND ANALYSIS SYSTEM IN ACCORDANCE WITH THE
HAZARDOUS WASTE FACILITY PERMIT**



Prepared by: _____

Jeffrey D. May, CTAC
Audit Team Leader

Date: _____

4/22/04

Approved by: _____

Ava L. Holland, CBFO
Quality Assurance Manager

Date: _____

5/5/05

1.0 EXECUTIVE SUMMARY

Carlsbad Field Office (CBFO) Audit A-04-12 was conducted to evaluate the adequacy, implementation, and effectiveness of the technical processes of the Idaho National Engineering and Environmental Laboratory (INEEL) Advanced Mixed Waste Treatment Project (AMWTP) transuranic (TRU) waste characterization activities as they relate to the addition of the Consonant Technologies, Inc., (CTI) headspace gas sampling and analysis system (HGAS S&A) for Summary Category Group S3000 (solids) waste.

The audit was conducted at the AMWTP facility April 12 through 15, 2004. The audit team concluded that the overall adequacy of the AMWTP technical and quality assurance (QA) programs, as applicable to audited activities, was satisfactory in meeting the flow-down of requirements from the CBFO Quality Assurance Program Document (QAPD) and the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit (HWFP). The audit team also concluded that the defined QA and technical programs for these activities were being implemented in accordance with the applicable requirement documents and the applicable implementing procedures, and that the processes were effective.

The audit team did not identify any conditions adverse to quality (CAQs); therefore no CBFO corrective action reports (CARs) were issued as the result of the audit. No conditions were Corrected During the Audit (CDAs) and no Observations or Recommendations were identified.

2.0 SCOPE AND PURPOSE

2.1 Scope

The audit team evaluated the adequacy, implementation, and effectiveness of the technical processes of AMWTP TRU waste activities as they relate to the addition of the CTI HGAS S&A system for S3000 (solids) waste. All other characterization technical elements and the complete QA program were evaluated during AMWTP Certification Audit A-03-05, performed August 19 – 21, 2003, and certified on March 9, 2004, and therefore were not included in this audit.

The following CBFO QA elements as they pertain to the new HGAS S&A system were audited:

- Quality Improvement
- Personnel Qualification and Training
- Documents and Records

The complete QA program was audited during the AMWTP Certification Audit A-03-05 performed August 19 – 21, 2003, and certified on March 9, 2004, and therefore was not included in this audit.

The following characterization technical elements as they pertain to the new HGAS S&A system were audited:

- CTI Headspace Gas Sampling & Analysis for S3000 (solids)
- Project-level Data Verification and Validation
- Performance Demonstration Program (PDP)
- Applicable sections of the Waste Analysis Plan (WAP), Section B6

All other characterization technical elements were audited during the AMWTP Certification Audit A-03-05, performed August 19-21, 2003, and certified on March 9, 2004, and therefore were not included in this audit.

2.2 Purpose

The audit team evaluated the adequacy, implementation, and effectiveness of the AMWTP TRU waste characterization activities for the new CTI HGAS S&A system for S3000 (solids) waste.

3.0 AUDITORS/TECHNICAL SPECIALISTS

Jeff May	Audit Team Leader/CBFO Technical Assistance Contractor (CTAC)
Dee Scott	Auditor/CTAC
BJ Verret	Technical Specialist/CTAC
Joe Willis	Technical Specialist/Washington TRU Solutions (WTS)
Todd Sellmer	Technical Specialist/WTS

OBSERVERS

Steve Holmes	New Mexico Environment Department (NMED)
Tally Jenkins	Department of Energy, Nuclear Energy, Idaho Operations (DOE-NE-ID)
James Wolski	DOE-NE-ID

4.0 AUDIT PARTICIPANTS

AMWTP individuals involved in the audit process are identified in Attachment 1. A pre-audit meeting was held at the AMWTP facilities in Idaho Falls, Idaho, on April 12, 2004. Daily meetings were held with AMWTP management and staff to discuss issues and potential deficiencies. The audit concluded with a post-audit meeting held at the AMWTP facilities in Idaho Falls, Idaho, on April 15, 2004.

5.0 SUMMARY OF AUDIT RESULTS

5.1 Program Adequacy and Implementation

The audit team concluded that the AMWTP procedures adequately reflect the requirements of the CBFO QAPD and the HWFP. The AMWTP procedures evaluated during this audit are provided in Attachment 4. Overall, the AMWTP implementing procedures and technical processes evaluated by the audit team were determined to be adequate, satisfactorily implemented, and effective.

5.2 Technical Activities

Each technical area audited is discussed in detail in the following sections. The method used to select objective evidence is discussed, the objective evidence used to assess compliance with the HWFP is cited briefly (and in detail on the checklist), and the result of the assessment is provided.

If a question could not be satisfactorily answered, an audit concern was identified. Concerns that were corrected during the audit are discussed in Section 6.2. A CAR is prepared to document those items not adequately addressed during the audit. A CAR allows CBFO to track the AMWTP's efforts to remediate the deficiency identified in the CAR. CARs are addressed in Section 6.1. No CARs or CDAs were issued as a result of this audit.

5.2.1 Table B6-1 WAP Checklist

The B6-1 WAP checklist addresses program requirements from an overall management perspective. It documents the verification that the waste characterization strategy as defined in the WAP is implemented by using controlled procedures. This audit was performed to assess AMWTP's ability to perform TRU waste characterization and certification as it relates to the addition of the new CTI HGAS S&A system for S3000 (solids) waste. Objective evidence to evaluate the implementation of the associated characterization activities was selected and reviewed. Batch data reports, sampling records, and training documentation for personnel were included in the evaluation. The audit included direct observation of actual waste characterization activities associated with the CTI HGAS S&A system. The characterization process involves:

- Collecting raw data
- Collecting quality assurance/quality control (QA/QC) samples or information
- Reducing the data to a useable format, including a standard report
- Review of the report by the data generation facility and the site project office
- Comparing the data against program data quality objectives (DQOs)

The flow of data from the point of generation up through project-level validation and verification was reviewed to ensure that all applicable requirements were captured in the site operating procedures. The material in this section is also addressed in more detail in

the following sections, which describe the specific procedures audited and the objective evidence reviewed.

During the audit, AMWTP demonstrated compliance with the characterization requirements of the HWFP through documentation and by performing the characterization activities. AMWTP provided the following HGAS Headspace Gas sampling batch data reports containing sampling and gas analytical batch information: HS404-00025, HS404-00042 and HS104-00045. Copies of these batch data reports are included in Attachment 3.

The batch data reports reviewed and the sampling processes observed were found to be acceptable. The remaining attributes addressed in the Table B6-1 WAP Checklist were audited during the AMWTP Certification Audit A-03-05, performed August 19 – 21, 2003, and certified on March 9, 2004, and therefore were not audited during this audit.

The audit team did not identify any CAQs; therefore no CBFO CARs or CDAs were issued and no Observations or Recommendations were identified. Overall, the audit team determined that the project-level activities associated with the addition of the CTI HGAS S&A system is adequate, satisfactorily implemented, and effective.

This audit verified that AMWTP is satisfactorily implementing the program requirements from an overall management perspective, including the project-level validation and verification process to characterize and certify waste for disposal in accordance with HWFP requirements as they relate to the addition of the CTI HGAS S&A system.

5.2.2 Table B6-2 Solids and Soils/Gravel Sampling Checklist

Table B6-2 is not within the scope of this audit. This table was completed during Audit A-03-05, performed August 18 – 22, 2003, and submitted along with the Revised Final Audit Report for Audit A-03-05.

5.2.3 Table B6-3 Acceptable Knowledge Checklist

Table B6-3 is not within the scope of this audit. This table was completed during Audit A-03-05 performed August 18 – 22, 2003, and submitted along with the Revised Final Audit Report for Audit A-03-05.

5.2.4 Table B6-4 Headspace Gas Checklist

The audit team evaluated the HGAS S&A activities and hydrogen and methane analysis activities performed on new AMWTP CTI HGAS S&A instruments April 12 – April 14, 2004. The following procedures on the new instruments were evaluated for adequacy: INST-OI-43, *HGAS Sampling and Analysis Operations*, MP-TRUW-8.8, *Level I Data Validation*, and MP-TRUW-8.9, *Level II Data Validation*. The procedures met the requirements of the WIPP WAP and the associated Environmental Protection Agency (EPA) SW-846 procedures.

AMWTP demonstrated HGAS S&A and hydrogen and methane analysis activities on April 13, 2004. Instrument tuning samples, QA samples, and actual drum samples were

sampled and analyzed. The instruments at AMWTP were examined and determined to meet the requirements for identical systems. Hydrogen and methane analyses are conducted simultaneously with headspace gas analysis and the data are reported on the same forms as HGAS data.

Three HGAS S&A data packages, HS404-00025, HS404-00042, and HS104-00045, were examined during the audit. Analytical standard certificates of analysis, measuring and test equipment certifications, initial calibrations, detection limits, and method performance standard results were evaluated. Interviews were conducted with staff members and individual personnel qualification and training were verified. The same chemists and operators who perform headspace gas analysis perform hydrogen and methane analysis. Records transmittal and storage were checked. Successful participation in the most recent Performance Demonstration Program headspace gas cycle (Cycle 18A) was verified.

No CARs, CDAs, Observations or Recommendations resulted from the evaluation of the HGAS S&A activities and hydrogen and methane analysis activities performed on new AMWTP CTI HGAS S&A instruments. The audit team concluded that the AMWTP procedures are adequate and activities to implement these procedures are satisfactory and effective.

The audit team concluded that the HGAS S&A activities and hydrogen and methane analysis activities implementing procedures adequately address program requirements. The audit team also determined that the HGAS S&A activities and hydrogen and methane analysis activities are being satisfactorily implemented and are effective.

5.2.5 B6-5 Radiography Checklist

Table B6-5 is not within the scope of this audit. This table was completed during Audit A-03-05 performed August 18 – 22, 2003, and submitted along with the Revised Final Audit Report for Audit A-03-05.

5.2.6 B6-6 VE Checklist

Table B6-6 is not within the scope of this audit. This table was completed during Audit A-03-05 performed August 18 – 22, 2003 and submitted along with the Revised Final Audit Report for Audit A-03-05.

6.0 SUMMARY OF DEFICIENCIES

6.1 Corrective Action Reports

During the audit, the audit team may identify Conditions Adverse to Quality (CAQ) and document such conditions on Corrective Action Reports (CARs).

Condition Adverse to Quality (CAQ) – An all-inclusive term used in reference to any of the following: failures, malfunctions, deficiencies, defective items, nonconformances, and technical inadequacies.

Significant Condition Adverse to Quality – A condition which, if uncorrected, could have a serious effect on safety, operability, waste confinement, TRU waste site certification, regulatory compliance demonstration, or the effective implementation of the QA program.

The audit team did not identify any CAQs during the audit and no CBFO CARs were issued.

6.2 Deficiencies Corrected During the Audit

During the audit, the audit team may identify CAQs. The audit team members and the Audit Team Leader (ATL) evaluate the CAQs to determine if they are significant. Once a determination is made that the CAQ is not significant, the audit team member, in conjunction with the ATL, determines if the CAQ is an isolated case requiring only remedial action and therefore can be Corrected During the Audit (CDA). Deficiencies that can be classified as CDA are those isolated deficiencies that do not require a root cause determination or actions to preclude recurrence, and those for which correction of the deficiency can be verified prior to the end of the audit. Examples include:

- One or two minor changes required to correct a procedure (isolated)
- One or two forms not signed or not dated (isolated)
- One or two individuals have not completed a reading assignment

Upon determination that the CAQ is isolated, the audit team member, in conjunction with the ATL, evaluates/verifies any objective evidence/actions submitted or taken by the audited organization and determines if the condition was corrected in an acceptable manner. Once it has been determined that the CAQ has been corrected, the ATL categorizes the condition as a CDA.

The audit team did not identify any CAQs resulting in the issuance of no CDAs.

7.0 SUMMARY OF OBSERVATIONS AND RECOMMENDATIONS

During the audit, the audit team may identify potential problems or suggestions for improvement that should be communicated to the audited organization. The audit team members, in conjunction with the ATL, evaluate these conditions and classify them as Observations or Recommendations using the following definitions:

Observation – A condition that, if not controlled, could result in a CAQ.

Recommendations – Suggestions that are directed toward identifying opportunities for improvement and enhancing methods of implementing requirements.

Once a determination is made, the audit team member, in conjunction with the ATL, categorizes the condition appropriately.

7.1 Observations

The audit team did not identify any issues that warranted the issuance of an observation.

7.2 Recommendations

The audit team did not identify any issues that warranted the issuance of a recommendation.

8.0 LIST OF ATTACHMENTS

- Attachment 1: Personnel Contacted During the Audit
- Attachment 2: Corrective Action Supporting Documentation
- Attachment 3: Objective Evidence
- Attachment 4: Audited AMWTP Implementing Procedures

PERSONNEL CONTACTED DURING THE AUDIT				
NAME	TITLE/ORG	PREAUDIT MEETING	CONTACTED DURING AUDIT	POST AUDIT MEETING
Briggs, Mike	Training Lead/BNFL	X		
Clary, Bridget	BNFL, Doc. Control		X	
Cullison, Richard	DOE-ID			X
Dobson, A. J.	General Manager/BNFL	X		X
Dumas, Elvin	QA Manager/BNFL	X		X
Edgerton, Brian	DOE-NE-ID AMWTP Project Director	X		X
Finup, Julie	DOE-ID FR	X		
Hampton, Jeremy	BNFL Operations	X		X
Harrawood, Ken	BNFL Production Mgr	X		
Harris, James	RSM/OSM, BNFL	X		
Huckaba, Chuck	BNFL Sr. Training Specialist		X	
Jenkins, Talley	DOE-ID	X	X	X
Masulonis, John	BNFL-OPS		X	
Pound, Don	WCO/TCO, BNFL	X		X
Provencher, Rick	DOE-ID Deputy Manger	X		X
Riley, Scott	Chemist, BNFL	X	X	X
Schweinsberg, Eric	TRU Program/BNFL	X	X	X
Stone, Ken	AMWTP TRU Programs	X		
Swale, Dave	Programs Manager, BNFL	X		X
Taft, Rod	DOE-NE-ID Ops			X
Tedford, Gina	WCO/TCO/BNFL	X	X	X
Wells, Jerry	DOE-ID	X		X

Personnel Contacted During the Audit by Area

CTI Headspace Gas Sampling and Analysis	Scott Riley Gina Tedford John Masulonis Bridget Clary Chuck Huckaba
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AMWTP PROCEDURES AUDITED IN AUDIT A-04-12			
	Procedure Number		Procedure Title
1.	MP-TRUW	8.1, R4	Certification Plan for INEEL Contact-Handled Transuranic Waste
2.	MP-TRUW	8.2, R2	Quality Assurance Project Plan (QAPjP)
3.	INST-OI	43, R1	HGAS Sampling and Analysis Operations
4.	MP-TRUW	8.8, R8	Level I Data Validation
5.	MP-TRUW	8.9, R6	Level II Data Validation